

REMARKS

In response to the Office Action mailed on May 17, 2007, Applicants respectfully request reconsideration. Claims 1-34 are now pending in this Application. Claims 1, 13, 16, 28, 31, 32, 33 and 34 are independent claims and the remaining claims are dependent claims.

According to a telephone conversation between Examiner and Applicants' Representative on July 31, 2007, it was resolved that Examiner mistakenly referred to "Chen", instead of "Brenner", as a cited reference in support of a rejection as discussed in line item 26 of the Office Action.

To further prosecution of this Application, Applicants submit the following amendments as well as remarks discussing patentability of rejected and newly added claims. In this Amendment, claims 1, 2, 3, 5, 13, 16-18, 20, 31, 32-34 have been amended and claims 7 and 22 have been cancelled. Support for amendments to claims 13, 32 and 34 can be found at pages 31-33 and Figure 6 of Applicants' Specification. Applicants believe that the claims as presented are in condition for allowance. A notice to this affect is respectfully requested.

Rejection of Originally Submitted Claims under 35 U.S.C. §112

Claims 2-3, 5, 17-18 and 20 stand rejected under 35 U.S.C. **§112(¶2)** as for being indefinite for failing to point out and distinctly claim the subject matter which applicants regard as the invention. Such claims have been amended to conform to the requirements of 35 U.S.C. **§112(¶2)**. To that end, Applicants believe that this rejection has been traversed and withdrawal of the rejection is requested.

Rejection of Originally Submitted Claims under 35 U.S.C. §103(a)

Claims 3-7 and 18-22 stand rejected under 35 U.S.C. **§103(a)** as being unpatentable over Oliveira in view of Brenner et al., US Pat No. 6,658,449 (hereinafter Brenner).

Examiner concedes that neither Oliveira nor Brenner teach the limitations of original claim 7, which are now included in amended independent claim 1. Applicants disagree with Examiner's assertion that the cited references provide a motivation which renders obvious the original claim 7 limitation of **identifying when an agent entry in the agent wait table has received no store assignment requests for a predetermined agent timeout period and in response, identifying the agent entry associated with that agent in the agent wait table as a non-responding agent.**

Examiner further concedes that Oliveira makes no mention of how to deal with requests when all processors are overloaded, such as the **non-available store condition** of claim 1. Examiner then relies on Brenner to make up for such deficiencies in Oliveira. However, Applicants submit that Brenner fails as a secondary reference. Specifically, Brenner's load balancing in a multiple run queue system does not suggest **identifying an agent entry associated with an agent in the agent wait table as a non-responding agent**, as recited in amended independent claim 1.

In Brenner, a plurality of CPUs are organized into nodes. Each node has a global run queue. Each CPU has its own local run queue for threads seeking processing time. (See Col. 3, Lines 11-17) The global run queue of the node competes with the CPU local run queues to service threads. (See Col. 3, Lines 33-35) Thereby, each CPU services a local run queue and the node's global run queue. Brenner determines the load factors for the heaviest and the lightest loaded local run queues. (See Col. 10, Lines 40-43) If the difference between the load factors for those two queues is higher than a threshold amount, a thread from the heaviest loaded local run queue is placed in the lightest local run queue. (See Col. 10, Lines 58-65) Thus, threads are added to the global run queue based on load balancing among the nodes and CPUs to keep the various run queues equally utilized. (See Col. 4, Lines 26-31)

Contrary to Examiner's arguments, Brenner would not provide a motivation to focus system resources on threads making active requests because Brenner relies on

thread priorities to control the dispatch of starving threads. Where a thread has been pending for longer than a threshold amount of time, that thread is requeued from its current local run queue to the global run queue. (See Col. 11, Lines 13-17) Then, the next available CPU allowed to service a thread at the given thread's priority will dispatch the thread and assign it to that CPU's local run queue. (See Col. 8, Lines 47-50) Hence, Brenner suggests that a thread that has been pending for longer than a **timeout period** can still be requeued for an available CPU based on its priority rather than being **identified as non-responding**.

For the reasons stated above, Applicants submit that neither Oliveira nor Brenner, alone or in combination, teach or suggest amended claim 1 and all respective dependent claims. Accordingly, the rejection under 35 U.S.C. §103(a) should be withdrawn. If the rejection is to be maintained, Applicants request that it be pointed out with particularity where the cited references disclose or suggest all of the claim limitations as disputed above.

Applicants respectfully submit that amended independent claims 16, 31 and 33 include similar patentable distinctions over the cited references as claim 1. Thus, Applicants respectfully request allowance of dependent claims 16, 31 and 33 as well as all corresponding dependent claims.

Rejection of Originally Submitted Claims under 35 U.S.C. §103(a)

Claims 1-2, 8-9, 12-17, 23-24 and 27-34 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Oliveira, US Pub. No. US 2004/0186904 A1.

As discussed above, Oliveira fails as a reference with regards to claims 1, 16, 31 and 34. Further, Oliveira does not teach or suggest the use of a **threshold load factor range**, as recited in claims 2 and 17, to determine availability of its processors since Oliveira teaches an alert when each processor has exhausted its processing capability. (See ¶0027) In particular, Oliveira handles the assignment of tasks to processors

based on which specific processors have the capability to handle the task according to CPU utilization information. (See Abstract, See ¶0026) A task may be delegated to a processor with a highest amount of processing capability. Additionally, the processing task may be assigned to a processor or a plurality of processors which have the capability to handle the task by analyzing an amount of processing required to support the task and the processing capability of each processor. (See ¶0026)

Oliveira processor availability is evaluated up until the processor has exhausted processing capability. (See ¶0027) Hence, a processor is still available if there is still a minimal amount of unused processing capability. Applicants' invention considers a store process as available if it is within a **threshold load factor range**. With respect to the **threshold load factor range**, a store process can be "unavailable" even though it may not be completely exhausted. Moreover, Oliveira provides no motivation for determining processor availability according to a CPU utilization **threshold range** because a task can be assigned to a plurality of processors. (See ¶0026) Since processing capability from multiple processors can be aggregated to meet processing requirements, there is no need to determine that a single Oliveira processor meet a particular **threshold range** of unused processing capability in order to be considered available for task processing.

For the reasons stated above, Applicants submit that Oliveira does not teach or suggest claims 2 and 17 and all respective dependent claims. Accordingly, the rejection under 35 U.S.C. §103(a) should be withdrawn. If the rejection is to be maintained, Applicants request that it be pointed out with particularity where the cited references disclose or suggest all of the claim limitations as disputed above.

Rejection of Originally Submitted Claims under 35 U.S.C. §103(a)

Claims 10-11 and 25-26 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Oliveira in view of Hejna Jr. et al., US Pat No. 5,287,508 (hereinafter Hejna).

The limitations of claim 1 and claim 16, from which claims 10-11 and 25-26 respectively depend, are similarly distinguished over Hejna as in Oliveira and Brenner. In Hejna, a predetermined number of bits are used for each entry in a process table to indicate the warmth of a cache with respect to a thread or a process. (See Abstract) Cache warmth bits indicate that a processor previously executed a thread such that the scheduler will assign that thread back to the processor in order to take advantage of the thread's data located in the processor's cache. (Id.) Cache warmth bits can also identify the number of time-slices prior that a thread was executed at a particular processor. (See Col. 4, Lines 4-8) Hejna uses such information by scheduling the more recent threads executed on the processors more frequently and scheduling the processes least used only when a predetermined number of time-slices have passed. As with Brenner, there is no motivation in Hejna to focus system resources on threads making active requests because a processor's cache warmth during a particular time slice may not necessarily match up with an actively requesting thread. In other words, Hejna prefers sending a thread to processors that have previously executed that thread, regardless if it is actively making requests. Thus, Hejna does not suggest **identifying an agent entry associated with an agent in the agent wait table as a non-responding agent.**

For the reasons stated above, Applicants submit that neither Oliveira nor Hejna, alone or in combination, teach or suggest amended claim 1 and all respective dependent claims. Accordingly, the rejection under 35 U.S.C. §103(a) should be withdrawn. If the rejection is to be maintained, Applicants request that it be pointed out with particularity where the cited references disclose or suggest all of the claim limitations as disputed above.

Applicants respectfully submit that amended independent claims 16, 31 and 33 include similar patentable distinctions over the cited references as claim 1. Thus, Applicants respectfully request allowance of claims 16, 31 and 33 and all corresponding dependent claims.

Rejection of Originally Submitted Claims 13, 28, 32 and 34 under 35 U.S.C. §103(a)

Independent claims 13, 28, 32 and 34 each teach that the steps of receiving the agent transaction, calculating the current collective transaction weight, calculating the new collective transaction weight, queuing the agent transaction, and processing the agent transaction occur **within a store process**. Such an aspect is not taught in the cited references.

Specifically, Oliveira is silent as to queuing tasks. Brenner requeues threads according to the load factor of the queues themselves instead of the potential effect of a thread's transaction weight on a particular CPU. Finally, Hejna is directed to making thread assignments based on a processor's history with a thread (i.e. the cache warmth) and not the thread's transaction weight. Thus, neither Oliveira, Brenner nor Hejna are directed to a processor performing its own calculations in order to queue a thread if that processor determines that the thread's transaction weight is unacceptable in light of the processor's current processing demands.

For the reasons stated above, Applicants submit that the cited references, alone or in combination, teach or suggest claims 13, 28, 32 and 34 all respective dependent claims. Accordingly, the rejection of these claims should be withdrawn. If the rejection is to be maintained, Applicants request that it be pointed out with particularity where the cited references disclose or suggest all of the claim limitations as disputed above.

Applicant(s) hereby petition(s) for any extension of time which is required to maintain the pendency of this case. If there is a fee occasioned by this response, including an extension fee, that is not covered by an enclosed check, please charge any deficiency to Deposit Account No. 50-3735.

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If the enclosed papers or fees are considered incomplete, the Patent Office is respectfully requested to contact the undersigned collect at (508) 616-9660, in Westborough, Massachusetts.

Respectfully submitted,

/DWR/

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